

Applicant : Lawrence D. Knox, et al.  
Serial No. : 10/629,243  
Filed : July 28, 2003  
Page : 15 of 26

Attorney's Docket No.: 02103-377003 / AABOSS14-  
CPCP

Amendments to the Drawings:

The attached replacement sheets of drawings include changes to Figs. 2a, 6a, 6b, and 6c and replace the original sheet including Figs. 2a, 6a, 6b, and 6c.

In Figure 2a, please insert "(MAY BE REMOTE)" in blocks 22 and 20.

In Fig. 6a, please change "57" to "157".

In Figs. 6a, 6b, and 6c, please insert arrow heads as indicated.

Attachments following last page of this Amendment:

Replacement Sheets (2 pages)

Annotated Sheets Showing Change(s) (2 pages)

### REMARKS

The comments of the applicant below are each preceded by related comments of the examiner (in small, bold type).

#### **Election/Restrictions**

1. Claims 8-19, 23-67, 70 and 72-78 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 11/22/05.

Although the election stated that claims 8-12, 23-26, 33-37, 65-67, and 70 also read on the elected embodiment, this is not accurate because those just mentioned claims either recite or depend from claims that recite determining or using trajectory, and the embodiment of Figure 2a does not include trajectory.

2. Applicant's election with traverse of Figure 2a in the reply filed on 11/22/05 is acknowledged. The traversal is on the ground(s) that some of the embodiments are only slightly different. This is not found persuasive because even the second paragraph of the 11/22/05 response states, for instance, that Figures 2a and 2b are "closely related", meaning they are different embodiments. Similarly, throughout the applicant's traverse, phrases like "closely related" and "either" are used, which is an admission by applicant that the embodiments are different. With eleven such different and alternative embodiments, it would be an undue burden on the examiner to locate and apply art to all the structure.

The requirement is still deemed proper and is therefore made FINAL.

(1., 2.) The applicant respectfully requests reconsideration of the exclusion of Claims 8 – 9 and 23 – 26 from the elected claims.

In the specification, at page 12, beginning at line 9, it is noted that “another embodiment of the invention includes both the profile device of FIG. 2a and the trajectory plan storage device of FIG. 2b.” Thus, while Claims 1 – 7 and 20 – 22 read on FIG. 2a, Claims 1 – 7 and 20 – 22 also read on FIG. 2b, and FIG. 2b is not a species distinct from FIG. 2a.

Removing the exclusion from the elected claims of Claims 8 – 9 and 23 – 26 would require no additional searching by the examiner. Claim 8 has been amended to depend on Claim 6, which the examiner has indicated includes allowable subject matter. Claim 9 depends on Claim 8. Claims 23 – 26 depend directly or indirectly on Claim 20, which the examiner has indicated includes allowable subject matter.

#### **Priority**

3. It is noted that this application appears to claim subject matter disclosed in prior Application No. 10/368,187, filed 2/18/03 and 09/535,849, filed 3/27/00. A reference to the

prior application must be inserted as the first sentence(s) of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e), 120, 121, or 365(c). See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, 121, or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371 (b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A benefit claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed benefit claim under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If the reference to the prior application was previously submitted within the time period set forth in 37 CFR 1.78(a), but not in the first sentence(s) of the specification or an application data sheet (ADS) as required by 37 CFR 1.78(a) (e.g., if the reference was submitted in an oath or declaration or the application transmittal letter), and the information concerning the benefit claim was recognized by the Office as shown by its inclusion on the first filing receipt, the petition under 37 CFR 1.78(a) and the surcharge under 37 CFR 1.17(t) are not required. Applicant is still required to submit the reference in compliance with 37 CFR 1.78(a) by filing an amendment to the first sentence(s) of the specification or an ADS. See MPEP § 201.11.

Specifically, the first paragraph of page 1 of the specification should state this application is a continuation-in-part of the other applications, and not that it just "claims priority" to the mentioned applications.

(3.) The first sentence of the Specification has been amended to state that this application is a continuation-in-part of other applications.

4. Also, on page 1, line 4 ", now abandoned" should follow "2003".

(4.) The specification has been amended as suggested by the examiner.

#### **Drawings**

5. The drawings are objected to because of the following informalities. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency.

Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

a. On page 8, line 2 "10A, 10B" should be "10a, 10b" in order to be consistent with the drawings.

(5a.) The Specification has been amended so that alphabetic characters in the figure designations are in the lower case, consistent with the Figures.

b. Also regarding page 8, line 2 there is no brief description of Figure 10c.

(5b.) The Specification has been amended to provide a brief description of Figure 10c.

c. On page 8, line 4 "11 A, 11C" should be "11 a, 11c".

(5c.) The Specification has been amended so that alphabetic characters in the figure designations are in the lower case, consistent with the Figures.

d. Contrary to page 12, line 18 reference numeral 14f is not a suspension element.

(5d.) The Specification has been amended to replace "14f" at page 12, line 18 with "18f, which is a suspension element.

e. Reference numeral 47a (page 13, line 22) is not on the drawings.

(5e) The Specification has been amended to replace "47a" with "47" which is in Fig. 4a.

f. Reference numeral 47 refers to a point on page 15, line 2, and a plan on page 13, line 20; a reference numeral should only refer to one part of the invention.

(5f.) The Specification has been amended to replace "47" at page 15, line 2 with "57", which refers to the same element throughout the Specification and Drawings.

g. Figures 6a-6c are unclear because there are no arrows on the lines showing the direction of flow.

(5g.) Figs. 6a – 6c have been amended to include arrows indicating the direction of process flow, consistent with the description of the process flow in the corresponding portion of the Specification.

**h. Contrary to page 15, lines 8-16 reference numeral 58 is not in Figure 6a (possibly, this should be reference numeral 57).**

(5h.) Reference numeral 57 in Fig. 6a and “58” at page line 9 have been replaced with “157”. The element indicated by reference numeral 157 in the Fig. 6a and the description of element 157 in the Specification are consistent.

**i. Reference numeral 56 (page 15, line 17) is not in Figure 6a; also, reference numeral 56 referred to a point, not a step, earlier in the specification.**

(5i.) The specification has been amended to replace “56” with “55”. Element 55 is a step.

**j. On page 26, line 31 “130a” should be “130A” to be consistent with the drawings.**

(5j.) The applicant assumes that the examiner refers to “130a” on page 26, line 31. The Specification has been amended as suggested by the examiner.

**6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the profile storage device and microprocessor remote from the surface vehicle (claims 2-3 and 21-22) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.**

**Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.**

(6.) Fig. 2a has been amended. At page 9, lines 21 – 28, it is indicated that the functions performed by microprocessor 20 may be performed by a number of microprocessors or

equivalent devices, some of which may be located remotely from vehicle 10 and that profile storage device 22 may be at some remote location.

**Specification**

**7. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.**

**8. The disclosure is objected to because of the following informalities.**

**Appropriate correction is required.**

**a. Page 3, lines 1-7 are an incomplete sentence.**

(7, 8a.) The applicant respectfully disagrees. While the passage at page 3, lines 1 – 7 may be complex and lengthy, it does contain a complete sentence. A comma had been inserted at line 4 to assist in parsing the sentence

**b. Page 3, lines 18-31 are an incomplete sentence.**

(8b.) The applicant respectfully disagrees. While the passage at page 3, lines 18 – 21 may be complex and lengthy, it does contain a complete sentence.

**c. Page 4, lines 1-8 are an incomplete sentence.**

(8c.) The applicant respectfully disagrees. While the passage at page 4, lines 1 – 8 may be complex and lengthy, it does contain a complete sentence.

**d. Page 4, line 17 - page 5, line 4 are an incomplete sentence.**

(8d.) The applicant respectfully disagrees. While the passage at page 4, line 17 – page 5 line 4 may be complex and lengthy, it does contain a complete sentence.

**e. Page 5, line 21 - page 6, line 6 is an incomplete sentence.**

(8e.) The applicant respectfully disagrees. While the passage at page 5 line 21 – page 6, line 6 may be complex and lengthy, it does contain a complete sentence.

**f. Page 6, lines 7-23 are an incomplete sentence.**

(8f.) The paragraph beginning at page 6, lines 7 has been amended so that page 6, lines 7 – 23 contain a complete sentence.

**g. Page 11, lines 4-5 and page 23, lines 12-13 are inaccurate to the invention in that the trajectory plan is not on the payload compartment.**

(8g.) The applicants do not understand the examiner's statement. The passages quoted by the examiner do not state that the trajectory plan is on the payload compartment. The passages quoted by the examiner state that the point or set of points are on the payload compartment.

**h. Page 11, lines 6 and 9 would not appear to be accurate in reciting points in the payload compartment.**

(8h.) The applicants do not understand the examiner's statement. The passages quoted by the examiner state that the trajectory plan is a pre-determined path in space of a point or set of points on the payload compartment. Stated differently, there are points or sets of points on the payload compartment. The trajectory plan is a pre-determined path in space of those points or sets of points.

**i. Page 12, lines 15-17 are reversed (part 18F does not exert a force to shorten distance).**

(8i.) The specification has been amended so that the specification does not state that part 18f exerts a force.

**j. On page 12, line 18 "maximum lower limit" should apparently be "maximum upper limit".**

(8j.) The specification has been amended to eliminate "lower".

**k. On page 21, line 1 the comma (",") should be a semi-colon (;) (currently, it is an incomplete sentence).**

(8k.) The specification has been amended as suggested by the examiner.

**l. On page 24, line 26 a period should follow "120".**

(8l.) The specification has been amended as suggested by the examiner.

**m. On page 26, line 24 "experienced" should apparently be "experience".**

(8m.) The specification has been amended as suggested by the examiner.

**n. Page 26, line 30 does not make sense ("spreads the a...").**

(8n.) The specification has been amended to eliminate "a", so that the sentence including page 26, line 30 makes sense.

**9. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01 (o). Correction of the**

**following is required: There is no support in the specification for claims 2-3 and 21-22 (the profile storage device and microprocessor remote from the vehicle).**

(9.) The applicant respectfully disagrees. The specification provides antecedent basis for the remote placement of the microprocessor is at least at page 9, lines 21 – 24.

**Claim Rejections - 35 USC §112**

**10. The following is a quotation of the first paragraph of 35 U.S.C. 112:**

**The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.**

**11. Claims 1-7, 20-22, 68-69 and 71 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Regarding page 11, line 30 and the remainder of the specification and claims, it is not clear what the difference is between a "profile" and a "trajectory plan"; in fact, it is not clear from the specification what is meant by "trajectory".**

(10, 11.) The applicant respectfully disagrees. The term “profile” is described at least at page 10, lines 22 – 27. The term “trajectory plan” is described at least at page 11, lines 4 – 5. The relationship between a profile and a trajectory plan, and one manner in which profile information can be used to create a trajectory plan (bidirectionally low pass filtering the profile information) is shown in FIG. 7 and described at page 12, lines 8 – 11. The low pass filtering may use a filter that has a fixed or variable break point (page 21, lines 18 – 21). Several other manners in which profile information can be used to create a trajectory plan are included in the disclosure, for example, at page 20 lines 26 – 30. It is disclosed that trajectory plans can be created and stored in a number of different forms, for example as spatial data, as force data, or as a succession of vehicle states or as a set of commands to be issued to a controllable suspension element (page 23, lines 13 – 19). It is disclosed that trajectory plans can be expressed in spatial or temporal forms and (page 20, lines 20 – 23), and that the trajectory plan can be developed in the time domain or in the frequency domain (page 20, lines 23 – 24). The term “trajectory” without “plan” or “planning” is used in the specification consistently with the ordinary meaning of the term.

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claims 4, 20-22, 68-69 and 71 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claim 4 is not accurate to the invention as disclosed in reciting the microprocessor as adapted to determine if there is a stored profile corresponding to the location.

(12, 13a.) The applicant does not understand the examiner's comment. However, in order to expedite prosecution, Claim 4 has been amended to eliminate the reference to the microprocessor.

b. In claim 20, line 5 "a" should precede "road profile".

(13b.) Claim 20 has been amended as suggested by the examiner.

c. In claim 68, line 8 there is no antecedent basis for "said road engaging device".

(13c.) Claim 68 has been amended to provide antecedent basis for the road engaging device.

#### Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claims 1, 4-5, 68-69 and 71 as best understood are rejected under 35 U.S.C. 102(b) as being anticipated by Schubert et al (US005899288A).

Schubert et al discloses a surface vehicle 2 with a payload compartment or cab 6 and a surface engaging device 22. A controllable suspension element 28 applies a force between cab 6 and surface engaging device 22. Note column 15, line 14 - column 17, line 24 where the system uses GPS sensors and computerized stored maps or profiles of where it intends to go to adjust the force of an active suspension between a payload or cab and road surface. This would be a profile storage device (the computer storing maps) including vertical deflection data (bumpiness of surface to be traveled over) and a profile retrieving microprocessor coupled to the suspension element and profile storage device for retrieving the one of the profiles on which the vehicle is traveling (circuit 222 which receives information about the maps and controls the suspension, which would be a microprocessor) (claim 1). Regarding claim 4, as functionally recited the GPS sensors are a locator system coupled to the microprocessor determining the location of the vehicle and adapted to determine if there is a stored profile or map corresponding to the location. Regarding claim 5 sensor 34a acquires vertical deflection data. Regarding claims 68-69, at Schubert et al (288), column 15, lines 31-37 predictive control signals to improve ride quality are empirically determined (i.e., bumpiness or vertical travel is predicted by previously

**empirically determining the contour of the road, which would involve driving over it). As noted above, maps or profiles are stored and retrieved (claim 71).**

(14, 15.) Claim 1 has been canceled. Claim 4 has been amended to depend on claim 6, which the examiner has indicated contains allowable subject matter. Claim 5 has been canceled.

Regarding Claim 68, the applicant respectfully disagrees.

Claim 68 recites "issuing a command to said controllable suspension to exert a force related to said one vertical disturbance before said road engaging device encounters said vertical disturbance." Col. 25, lines 31 – 37, cited by the examiner, relate to adaptive or predictive control algorithms that can use parameters to predict the movement of the of the cab caused by "the forces." "The forces" refers to "forces applied by the vehicle as the transmission upshifts and downshifts and [the] vehicle accelerates and decelerates." [col. 15, lines 12 – 13, further explained in lines 14 – 30]. The activity controlled by the adaptive or predictive control algorithms is related to events in the vehicle itself (for example upshifting and downshifting) rather than to any one vertical disturbance. The "bumpiness" cited by the examiner is not used with the predictive control algorithms described in the passage cited by the examiner. Instead, "bumpiness" is used to adjust the gain G of the active cab suspension system (ACS)[see col. 11, lines 9 – 17] which is shown in Fig. 10 and described at column 9, lines 40 – column 11, line 30. The inputs to the process control diagram of Fig. 10 are displacement signals D sensed by a sensor 132 (which is located on an active vibration isolator, see Fig. 3) and an acceleration signal A from a sensor 84 (which is also on an active vibration isolator, see Fig. 3). There is no indication that the device of Schubert issues a command to exert a force related to a vertical disturbance before the disturbance is encountered.

**Claim Rejections - 35 USC § 103**

**16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:**

**(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.**

**Patentability shall not be negated by the manner in which the invention was made.**

**17. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the**

various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

18. Claims 2-3 as best understood are rejected under 35 U.S.C. 103(a) as being unpatentable over Schubert et al (288).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Schubert et al to include the storage retrieval device and microprocessor remote from the vehicle as an obvious matter of design choice, as the specification gives no stated reason or particular purpose for the remote locations of the systems, and the invention would appear to work just as well whether the device and microcomputer are remote from the vehicle or on it.

(16, 17, 18.) Claims 2 and 3 have been amended to depend on Claim 6, which the examiner has indicated contains allowable subject matter.

**Allowable Subject Matter**

19. Claims 6-7 and 21-22 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

(19.) The applicant respectfully requests reconsideration and allowance of Claims 6 – 7. Claims 6 and 7 have been amended to include limitations of the base claim and any intervening claims. Some limitations of the base claim and intervening claims have been omitted from the amended claims 6 and 7. The applicant believes that the limitation(s) that the examiner believed to render the claim patentable have been incorporated in amended claims 6 and 7. The rejection(s) under 35 U.S.C. 112, 2<sup>nd</sup> paragraph were addressed above, in the response to Paragraphs 10 and 11.

The applicants respectfully request the reconsideration and allowance of Claims 21 – 22. Claims 21 – 22 depend on claim 20, which the examiner has indicated contains allowable subject matter and therefore include all of the limitations of the base claim and any intervening claim(s). The rejection of Claim 20 under 35 U.S.C. 112 2<sup>nd</sup> paragraph were addressed above in the discussion of Paragraphs 10 and 11.

20. Claim 20 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

(20.) The applicants respectfully request the reconsideration and allowance of Claim 20.

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The rejection of Claim 20 under 35 U.S.C. 112 was addressed above in the discussion of Paragraphs 10 and 11.

All of the dependent claims are patentable for at least the reasons for which the claims on which they depend are patentable.

Canceled claims, if any, have been canceled without prejudice or disclaimer.

Any circumstance in which the applicant has (a) addressed certain comments of the examiner does not mean that the applicant concedes other comments of the examiner, (b) made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims, or (c) amended or canceled a claim does not mean that the applicant concedes any of the examiner's positions with respect to that claim or other claims.

Enclosed is a \$450 check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050, Order No. 02103-377003.

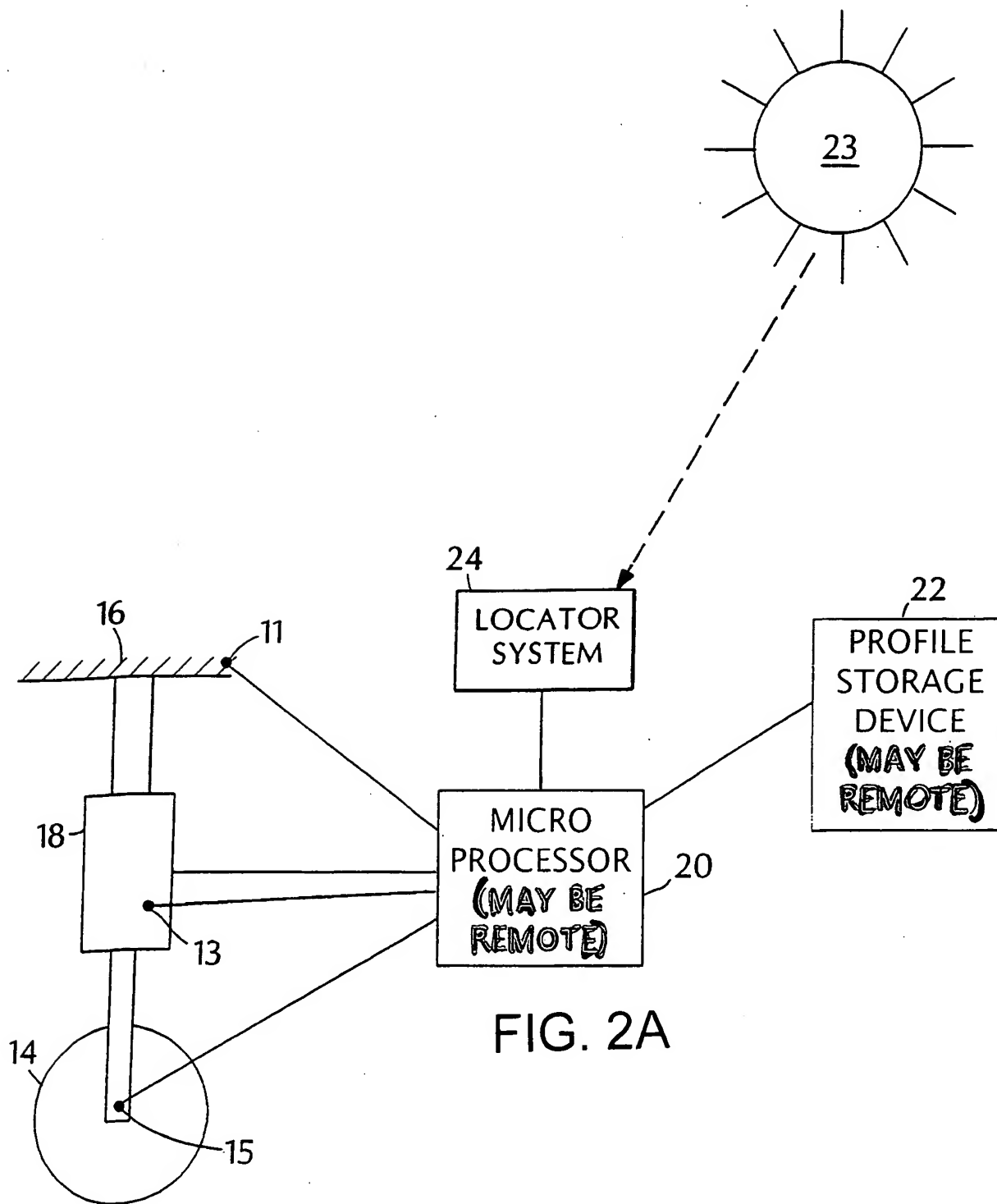
Respectfully submitted,

Date: 6/9/06



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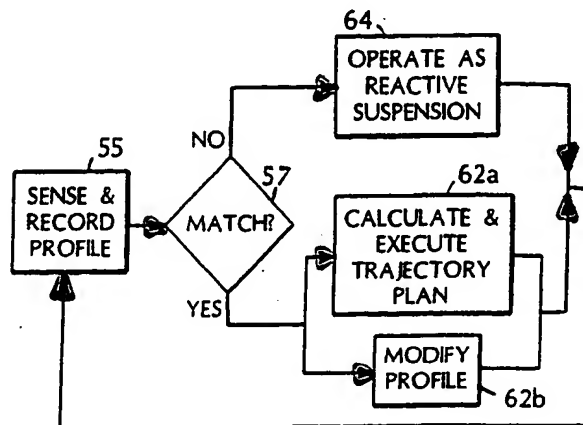


FIG. 6A

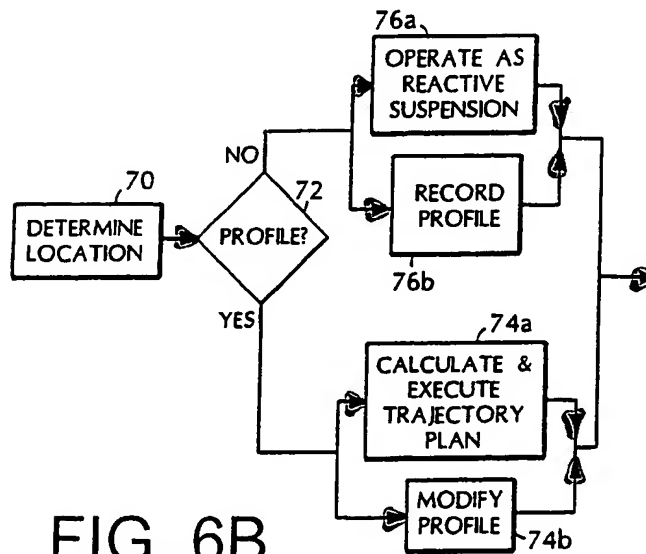


FIG. 6B

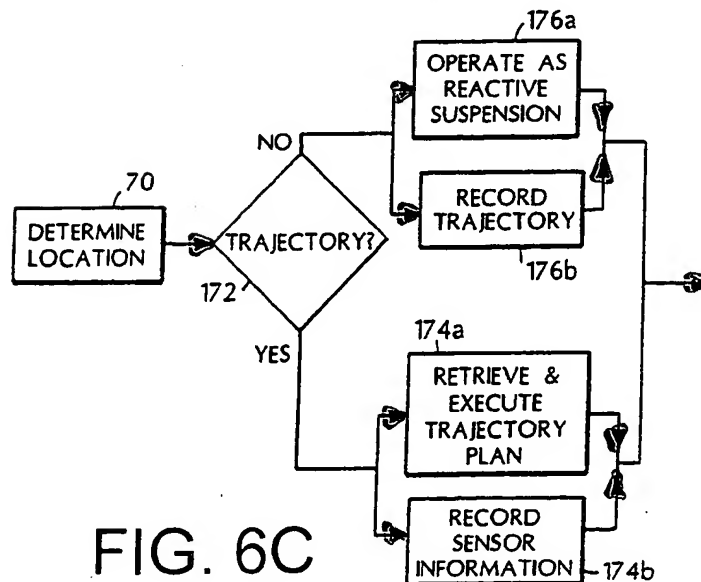


FIG. 6C